

# Vulval dermatoses (venereal and nonvenereal) among female patients presenting to a tertiary care hospital in North India

Karamjot Kaur, Manjit Kaur Mohi<sup>1</sup>, Dimple Chopra, Rishu Sarangal, Jatinder Raj Singh Saini<sup>2</sup>, Preeyati Chopra  
Departments of Skin and VD, <sup>1</sup>Obstetrics and Gynaecology, <sup>2</sup>General Surgery, GMC, Patiala, Punjab, India

## Address for correspondence:

Dr. Rishu Sarangal, Department of Skin and VD, GMC, Patiala, Punjab, India.  
E-mail: sarangalr@gmail.com

## Abstract

**Background:** The skin and mucosa of the vulva are different from the rest of the human body, as it is derived from all three embryological layers. It is more prone to dermatological diseases, both infectious and noninfectious. **Aims and Objectives:** Our study was a prospective descriptive study on female patients attending the skin outpatient department with complaints of vulval dermatoses. Our aim was to determine the prevalence of venereal and nonvenereal dermatoses (infectious and non-infectious) along with age-wise distribution of these in our area. **Materials and Methods:** All female patients presenting with visible skin lesions on the vulva from January 2019 to December 2019 were included in this study. Various diagnostic tests such as Gram staining, Tzanck smear, KOH mount, herpes simplex virus serology, and skin biopsy were performed wherever necessary. **Observations and Results:** The study included 520 patients in whom 525 lesions were identified. These were grouped under venereal and non-venereal dermatoses. Nonvenereal dermatoses were further grouped under infectious and non-infectious conditions. Maximum patients were in the age group of 21–40 years (50.19%). The most common dermatoses were non-venereal infections, seen in 220 (42.30%) patients followed by non-venereal, non-infectious dermatoses seen in 177 (34.04%) patients whereas venereal dermatoses were seen in 128 (24.61%) patients. **Conclusion:** Most of the patients were in the reproductive age group, and the prevalence of infectious dermatoses both venereal and non-venereal was much more than that of non-infectious conditions affecting the vulval skin as per our study.

**Key words:** Nonvenereal diseases, venereal diseases, vulval dermatoses

## Introduction

The vulva can be affected by a multitude of dermatoses in a distinct and unique manner.<sup>[1]</sup> The reported prevalence of vulval dermatoses is far less than the actual disease burden in the society because of difficult self-examination and hesitance in visiting the doctor, mainly among female patients.<sup>[2]</sup> It is very important to differentiate venereal diseases (sexually transmitted) from non-venereal (not sexually transmitted) ones, as the fear of having sexually transmitted disease may lead to guilt, anxiety, mental distress, and even marital disharmony in the patients. Moreover, vulval dermatoses may be a sign of a more widespread systemic disease.<sup>[3]</sup> Vulval pathologies may sometimes be confused with normal anatomical or physiological conditions of the vulva, like vulval papillomatosis may be confused with genital warts and melanocytic nevi may be confused with malignant melanoma, so it necessitates a correct diagnosis to avoid unnecessary interventions.<sup>[4]</sup> Vulva extends from mons pubis

anteriorly to anal margin posteriorly.<sup>[1]</sup> The skin and mucosa here differ from the skin of the rest of the body, because epithelia from all three embryological layers, i.e., ectoderm, mesoderm, and endoderm, coalesce here. Vulva has a unique immunological response because of foreign proteins and antigens necessary for reproduction and the loose subcutaneous tissue of the labia majora. The presentation of vulval dermatoses is further modified because of excessive moisture, pubic hair, folded skin, and occlusive clothing.<sup>[5]</sup> Vulval dermatoses can be further classified into.<sup>[6]</sup>

1. Infections and infestations
  - a. Venereal
  - b. Nonvenereal.
2. Noninfectious vulval dermatoses
  - a. Congenital and physiological conditions
  - b. Inflammatory dermatoses

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- c. Vesiculobullous diseases
- d. Vascular diseases
- e. Tumors and cysts.

This study was done to determine the frequency of venereal and nonvenereal dermatological conditions affecting the vulva and the age-wise distribution of these in our part of the country.

**Materials and Methods**

It is a cross-sectional descriptive study conducted over a period of 1 year from January 2019 to December 2019. Clearance from the institute ethics committee was obtained. All female patients presenting to the outpatient clinic of skin and gynecology departments with complaints of burning, itching, etc., in the vulval area were screened for the presence of skin lesions. Those without any visible skin lesions were excluded from the study. Female patients who consented for participation in the study were enrolled irrespective of their age and pregnancy status. Informed consent was obtained. Detailed history including chief complaints, onset and duration of disease, menstrual status, family history, and other systemic illnesses were recorded. The vulval skin was examined to see the type of lesions, and a detailed physical examination was done to see the presence of similar lesions elsewhere on the body. Gram staining, KOH mount, Tzanck smear, herpes virus serology, HIV serology, VDRL (Venereal Disease Research laboratory testing) serology, and histopathological examination of lesional skin were done wherever required. Results were tabulated and analyzed by SPSS 13.0 software.

**Results**

Total 520 female patients in the age range from 2 months to 80 years were included in the study according to inclusion and exclusion criteria and total 525 dermatoses were identified in them. The maximum number of patients were in the age group of 21–40 years, i.e., 261 (50.19%), followed by 122 (23.46%) in 41–60 years, 70 (13.46%) in 0–20 years, and 67 (12.88%) in 61–80 years. The mean age was 37 years. The most common presenting symptom was vulval pruritus which was present in 316 patients (60.76%) followed by xerosis (dryness) of skin in 97 patients (18.65%), pain and burning in 91 patients (17.5%), thickened and rough skin in 61 patients (11.73%), and ulcers in 59 patients (11.34%) [Table 1].

The vulval dermatoses were divided into venereal and non-venereal diseases. There were 128 cases (24.4%) of venereal diseases and 397 cases (75.6%) of non-venereal dermatoses. The non-venereal conditions were further divided into infectious diseases in 220 (41.57%) patients and non-infectious diseases in 177 (34.03%) patients. The non-infectious dermatoses included inflammatory diseases in 112 (21.3%), physiological conditions in 22 (4.1%), pigmentary dermatoses in 16 (3.04%), tumors and cystic conditions in 12 (2.3%), vascular conditions

in 11 (2.1%), and miscellaneous dermatoses in 4 (0.76%) patients [Figure 1].

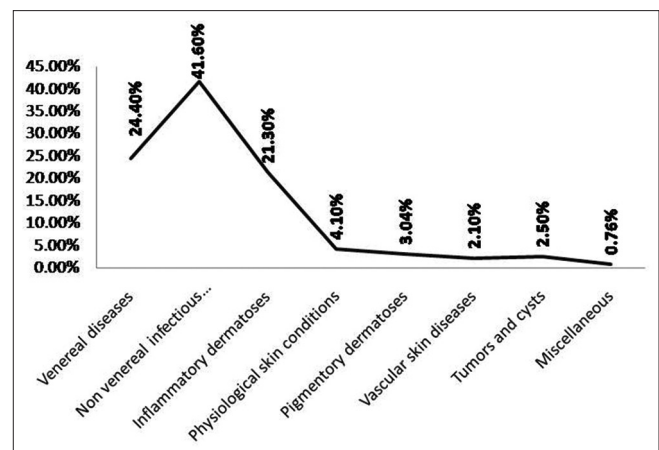
Among venereal diseases, genital warts [Figure 2a] were the most commonly present, seen in 51 (9.8%) patients followed by genital molluscum contagiosum (MC) in 44 (8.46%), herpes genitalis in 22 (4.2%), syphilis [Figure 2b] in 6 (1.15%), chancroid in 3 (0.57%), and donovanosis in 2 (0.38%) [Figure 2c and d] patients. The pattern of venereal diseases in our study and distribution of venereal diseases in different age groups is shown in Figures 3 and 4. Maximum number of patients with venereal diseases were in the age group of 21–40 years with genital warts being the most common condition in this age group (15.70%). Age group 0–20 years was the second most common age group to have venereal diseases in which genital warts and genital MC were the most common conditions (8.57% each).

In the non-venereal infectious dermatoses [Figure 5], tinea cruris was the most common condition present in 130 patients, others were candidal vulvovaginitis, folliculitis, and ecthyma [Figure 6a], and the age-wise distribution showed that maximum number of patients with nonvenereal infections were in the age group of 21-40 years, and in them, candidal vulvovaginitis was present in 15.70% of patients followed by tinea cruris seen in 14.55% of patients followed by folliculitis/furunculosis in 3.45% and scabies in 1.53% of patients. The next age group was 41–60 years where tinea cruris was present in 28.68% of patients followed by candidal vulvovaginitis present in 9.01% of total patients in this age group followed by ecthyma in 3.27% and herpes zoster in 0.82% of patients, the next age group was 61–80 years, and in them, tinea cruris was overall the most common dermatoses seen in 55.22% of patients followed by candidal vulvovaginitis and herpes zoster in 1.49% of patients each and the least number of patients were in the age group of 0–20 years where tinea cruris was present in 28.57% of patients followed by candidal vulvovaginitis in 12.85% and folliculitis/furunculosis and scabies in 5.71% and 2.85% of patients, respectively [Figure 7].

Among the nonvenereal noninfectious dermatoses [Figures 7 and 8], lichen simplex chronicus (LSC) was the most common condition seen in 9.20% of patients and others were lichen sclerosus et atrophicus (LSEA), lichen planus, psoriasis, aphthous ulcers [Figure 6b], etc. The most common age group to have noninfectious vulval dermatoses

**Table 1: Presenting complaints**

Presenting complaint	Number of patients (n=520) n (%)
Pruritus	316 (60.76)
Xerosis	97 (18.65)
Pain and burning	91 (17.5)
Thickened and rough skin	61 (11.73)
Ulcers	59 (11.34)



**Figure 1: Frequency of infectious and noninfectious vulval dermatoses**



Figure 2: (a) Condyloma accuminata (b) Syphilis (condylomata lata), (c) Donovanosis, (d) Safety pin bodies in donovanosis

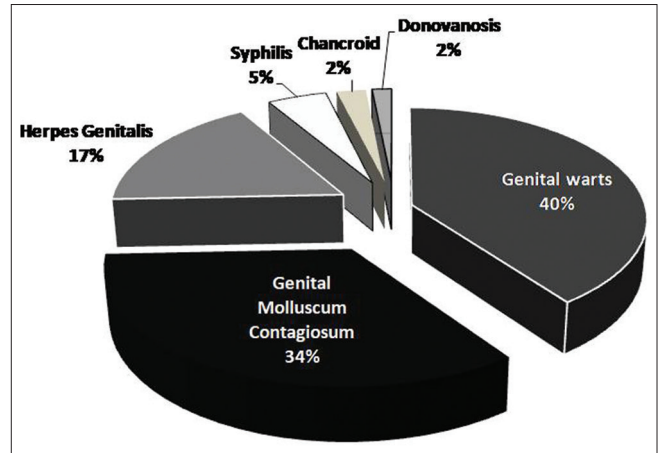


Figure 3: Pattern of venereal diseases

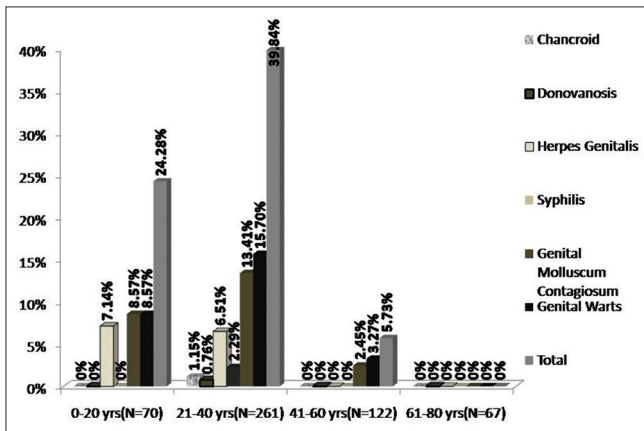


Figure 4: Pattern of venereal diseases among different age groups

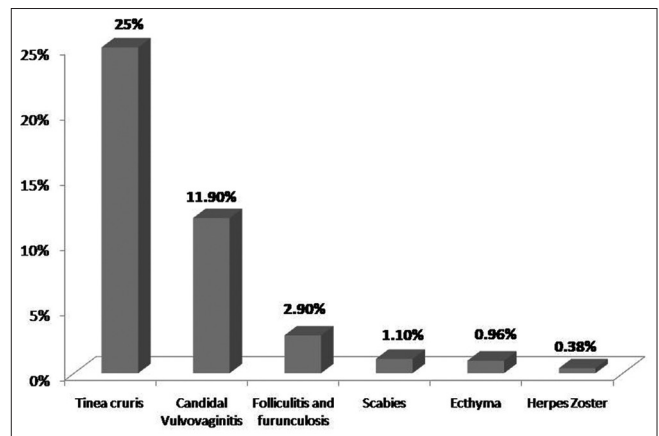


Figure 5: Pattern of nonvenereal infectious dermatoses



Figure 6: (a) Ecthyma, (b) Vulval aphthous ulcers

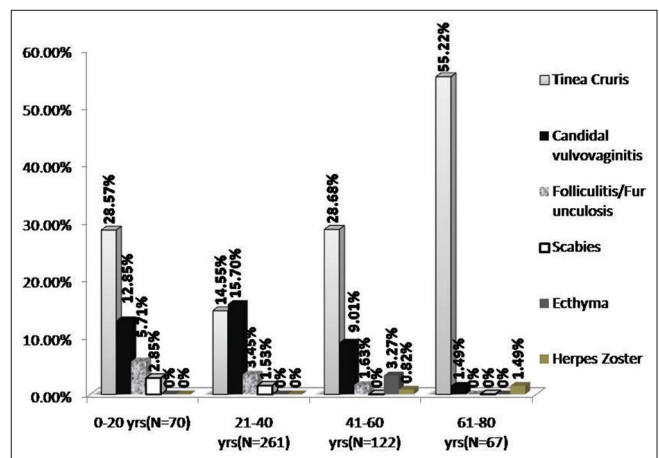


Figure 7: Pattern of nonvenereal infectious dermatoses

was 21–40 years making 38.51% of the total followed by 41–60 years making 34.56%, 61–80 years making 16.9%, and 0–20 years making 10% of total.

While studying the age-wise distribution of vulval dermatoses, in the age group of 0–20 years, nonvenereal infectious dermatoses were most common (50%) followed by venereal infections in 24.28%. In the age group of 21–40 years, the most common dermatoses were venereal infections followed by nonvenereal infectious dermatoses. In the age group of 41–60 years, nonvenereal noninfectious conditions were the most common (50.81%) followed by nonvenereal infections in 43.44%, and in the age group of

61–80 years, nonvenereal infections were most commonly present in 58.20% followed by nonvenereal noninfectious dermatoses present in 46.27% of patients [Table 2].

Among the study patients, there were 44 pregnant females; in them, genital warts were the most common condition seen in 11 patients (25%) followed by candidal vulvovaginitis and tinea cruris in 8 (18.20%) each, genital MC in 6 (13.63%) patients, vulval varicosities in 11.36% of

patients, and herpes genitalis, syphilis, pyogenic granuloma, Bartholin's cyst, contact irritant dermatitis, and vulval papillomatosis in 1 (2.27%) patients each [Figure 9]. Of 520 patients, 49 patients were having concomitant HIV infection. Genital MC (10 patients, 20.40%) was the most common vulval dermatoses among the HIV positive patients, followed by candidal vulvovaginitis in 8 patients (16.32%).

**Discussion**

There are very limited studies on the overall prevalence of vulval dermatoses both venereal and nonvenereal. Most of the available literature had separately studied the venereal and nonvenereal vulval dermatoses. We conducted this study to estimate the disease burden of both venereal and nonvenereal vulval dermatoses in our area.

In our study, age distribution pattern of vulval dermatoses showed maximum number of cases, i.e., 261 patients (50.19%) in the age group of 21–40 years and minimum number of cases, i.e., 67 patients (12.88%) in the age group above 60 years.

According to our study, genital pruritus was the most common presenting complaint, present in 316 (60.76%) patients, followed by feeling of dryness in 97 (18.65%) patients, pain and burning in 91 (17.5%) patients, thickened and rough skin in 61 (11.73%) patients, and ulcers and erosions in 59 (11.34%) patients. Many patients presented with more than one complaint. The results were comparable to studies done in the past by Joshi et al.,<sup>[2]</sup> Singh et al.,<sup>[7]</sup> Singh et al.,<sup>[8]</sup> and Pathak et al.,<sup>[5]</sup> showing vulval itching to be the most common presenting complaint.

The vulval dermatoses were divided into venereal and nonvenereal diseases. There were 128 cases (24.4%) of venereal diseases and 397 cases (75.6%) of nonvenereal dermatoses. According to our study, the prevalence of venereal infections in our part of the country was 24.4%.

Genital warts were most common seen in 51 (9.8%) patients followed by genital MC in 44 (8.46%), herpes genitalis in 22 (4.2%), syphilis in 6 (1.15%), chancroid in 3 (0.57%), and donovanosis in 2 patients (0.38%). In a study done by Banger et al.,<sup>[9]</sup> the venereal diseases were divided on the basis of clinical presentation as ulcer or growth, herpes genitalis was the most common ulcerative condition, and genital warts were the most common vulval growths. Our study results showed that out of these two conditions, genital warts were the most common venereal infection. In studies done by Sartori et al.<sup>[11]</sup> and Forhan et al.<sup>[10]</sup> to find the prevalence of vulval dermatoses and sexually transmitted infections (STIs) among females, respectively, HPV infection was most common and the prevalence of STIs was 24.1%. Our study also showed genital warts (HPV) to be the most common among STIs.

Nonvenereal infections were the most common vulval dermatoses observed in our study. Tinea cruris was present in maximum number of patients almost 25%, followed by candidal vulvovaginitis in 11.90% of patients, vulval folliculitis or furunculosis in 2.90% of patients, scabies in 1.10%, ecthyma in 0.96%, and herpes zoster in 0.38% of patients with vulval distribution. In a study conducted by Singh et al.<sup>[7]</sup> in 2016, tinea cruris was seen to be the most common nonvenereal infection presenting on the vulva with a prevalence of 30% followed by candidal vulvovaginitis in 8.57% of cases. The results of our study were similar to this. Whereas in most of the other studies done by Pathak et al.,<sup>[5]</sup> Singh et al.,<sup>[8]</sup> Babu et al.,<sup>[11]</sup> and Sivayadevi and Anandan,<sup>[3]</sup> candidal vulvovaginitis was the most common nonvenereal infection. The reason for this difference can be explained by the current outbreak of chronic and recalcitrant dermatophytosis due to misuse of combination creams.<sup>[12-14]</sup>

Among noninfectious dermatoses, LSC was the most common condition observed in 9.20% of patients followed by 4.60% of cases of LSEA, 3.80% of cases of contact irritant dermatitis, etc. In the studies by Joshi et al.<sup>[2]</sup> and Puri,<sup>[15]</sup> LSEA was found to be the most prevalent

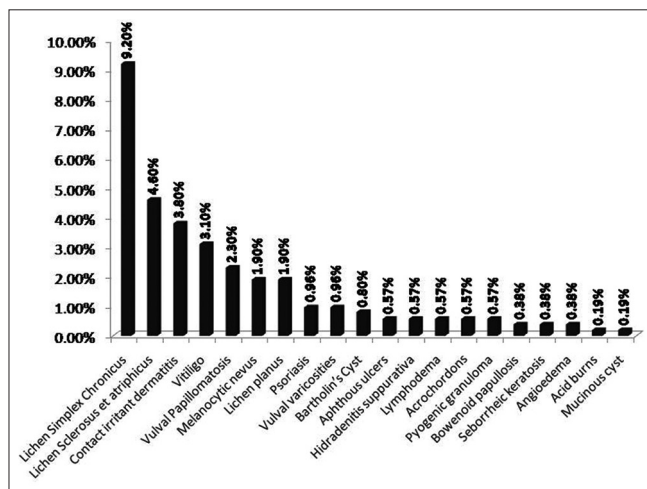


Figure 8: Pattern of nonvenereal non-infectious dermatoses

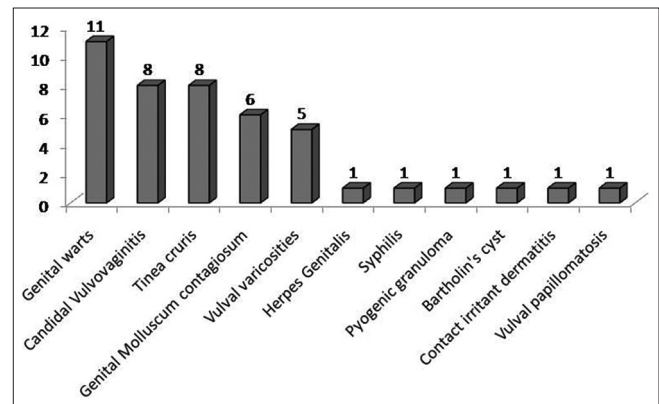


Figure 9: Pattern of vulval dermatoses in pregnant females

Table 2: Pattern of various vulval dermatoses among different age groups

Age group (years)	Venereal infections (%)	Nonvenereal infectious dermatoses (%)	Physiological skin conditions (%)	Noninfectious pathological skin conditions (%)
0-20	24.28	50	2.85	22.85
21-40	39.84	35.63	7.66	18.39
41-60	5.73	43.44	0	50.81
61-80	0	58.20	0	46.27

noninfectious dermatosis of female external genitalia followed by LSC, contact irritant dermatitis, lichen planus, and vitiligo. While in our study, LSC (30.57%) was the most common dermatoses in this group followed by LSEA (15.28%), contact irritant dermatitis (12.74%), vitiligo (10.19%), and lichen planus (6.36%), respectively.

In the age group of 0–20 years, nonvenereal infections were the most common, seen in 50% of patients. In the age group of 21–40 years, venereal infections were the most common, seen in 39.84% of patients. In the age group of 41–60 years, noninfectious conditions were the most common seen in 50.81% of patients, and finally, among females of >60 years, nonvenereal infections were again the most common seen in 58.20% of patients closely followed by noninfectious dermatoses seen in 46.27% of patients. In pediatric patients (age <12 years), atopic dermatitis and vitiligo were more common, while in geriatric patients, LSC, LSEA, psoriasis, etc., were more common.

In a study by Pathak *et al.*,<sup>[5]</sup> the nonvenereal infections and infestations were the most common dermatoses among females of age <45 years, seen in 63.63% of patients aged <15 years and 79.99% of patients aged 15–45 years. Our study results were in concordance with this study, with nonvenereal infections making 50% of <20 years and 35.63% of patients in the age group of 21–40 years. Similarly, noninfectious inflammatory dermatoses were more common in age >45 years in the study by Pathak *et al.*,<sup>[5]</sup> our study results were in concordance with the same.

While looking at the pattern of vulval dermatoses among pregnant females, we found out that venereal infections accounted for 43.18% of all the cases among pregnant females, compared to 36.36% of cases of nonvenereal infections followed by noninfectious dermatoses accounting for only 18.18% of cases and physiological skin conditions in only 2.27% of cases. Various studies by Sudha *et al.*,<sup>[16]</sup> Kourtis *et al.*,<sup>[17]</sup> and Sappenfield *et al.*<sup>[18]</sup> state increased susceptibility and severity of infections in pregnant females due to altered immune status. A study done by Arul *et al.*<sup>[19]</sup> showed increased prevalence of candidal vulvovaginitis in pregnant women. Another study by Aguin and Sobel<sup>[20]</sup> states increased vaginal colonization by *Candida*. Our study results are consistent with these studies showing increased incidence of infections among pregnant females. Looking at the pattern of noninfectious conditions in pregnant females, we saw that vulval varicosities were present only among pregnant females, and there were no cases in the nonpregnant group. The results of this study were comparable to a study by Fassiadis<sup>[21]</sup> which stated the prevalence of vulval varicosities among pregnant females to be 18%–22%.

## Conclusion

Our study ascertained the overall prevalence, age-wise distribution, and clinical characteristics of vulval dermatoses in our area, which have not been studied before. Our study is novel and has large sample size of patients, as we took into account both the venereal and nonvenereal vulval dermatoses. The studies on epidemiology of vulval dermatoses are limited as per literature review, thus our study will help filling the gap in literature on this topic.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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